Marcia B. Mellitz
President & CEO
William B. Simon
VP & COO
Barbara A. Enneking
VP, Enterprise Development

CENTER FOR EMERGING TECHNOLOGIES℠
Where Breakthrough Ideas Become Reality

White Paper for Missouri's Economic Growth

The Need

The St. Louis region has an immediate critical need to create job opportunities and to redeploy individuals displaced from life science companies. In Juju.com's recent Job Search Difficulty Index, St. Louis was 49th out of 50 metro areas, only ahead of Detroit, with 18 people job hunting for every job available. Over 600 people were laid-off from Pfizer in early 2010, joining over 2,000 other highly educated and experienced professional and technical employees previously laid-off from life science companies in the St. Louis region. Most of these jobs are not coming back. It would be devastating for St. Louis to lose this extensive talent to other regions or from the local life science workforce. Exodus of such workers would impede economic recovery in the region and reduce the pool of skilled individuals critical for 21st century economic competiveness.

The need is not just immediate but is long-term as the entire US economy is going through a restructuring. We need to move beyond viewing the competition as Kansas and recognize that the competition is China and Singapore, which are rapidly catching-up and surpassing us. Further, most other states are continuing to make substantial investments in technology-based economic development, even though, like Missouri, they are facing budgetary shortfalls. These states understand that they must make serious investments to first recover from a depressed economy and job loss and second to insure economic growth well into the future. Missouri has had a history of not investing adequately in economic development and has approached the current economic downturn by cutting rather than investing. As a result we are losing out on potential opportunities to grow, attract and retain companies and the associated new job creation. The impact of this policy has been a steady decline of the state's GDP and per capita income over the last few decades.

The Solution

There has been disproportional effort on company recruitment in relation to a grow-our-own strategy. However, in biosciences and most other technology industries, new companies start around related research institutions and once started, 80% stay in the location where they began. Any strategy for economic growth, must include a concerted strategy for new company creation and development, particularly high-growth companies. New companies are the best creators of new jobs. According to the Kauffman Foundation:

- 1/3 of this year's GDP is produced by companies that did not exist 25 years ago;
- Net new US job growth from 1980-2001 was from firms less than 5 years old and most of the new jobs still existed after five years; and

- High-growth entrepreneurial firms that create more than 20 jobs are less than 15% of total start-ups but they created 80% of the total net new jobs in last two decades.

New high-growth companies drive regional economic growth. According to a US Small Business Administration (SBA) study, regions with these high-growth firms experience:

- 125% more employment growth,
- 58% more wage growth, and
- 109% higher productivity.

Exporting is key to having a vibrant economy. An August 2010 Brookings Institute Report found that the top exporting metro areas are significantly more innovative and those with strong regional technology clusters are more likely to export internationally. The St. Louis Region is well positioned to grow its innovative bioscience cluster. The region has made huge strides in starting and growing bioscience and other advanced technology companies. These companies fit a term coined by the US Council on Competitiveness: "micro-multinationals" – international from day one – creating partnerships and research relationships with multi-national companies in Europe and Asia, as well as the US.

Unfortunately, Missouri's company creation record has been poor. In the 2009 Kauffman Index of Entrepreneurial Activity, Missouri was second worst in the number of new companies created in 2008: 150 per 100,000 adults, compared to 590 in Georgia. However, the Center for Emerging Technologies (CET) and others in the St. Louis region are nationally recognized as having a noteworthy track record of success in developing medical and other advanced technology companies. CET and its partners are well positioned to greatly increase the number of new start-up bioscience companies, as well as accelerate the company creation process but efforts are severely limited by the lack of adequate resources.

Growing the St. Louis Bioscience Cluster

Bioscience (life science) companies can be medical (therapeutics, diagnostics, instruments and/or devices), plant sciences or energy (bio-fuels). St. Louis is substantially behind other regions that are actively executing a strategy for developing a robust bioscience cluster. Other regions in Missouri also badly need an infusion of resources to develop a bioscience cluster in their area of strength.

In order to have serious impact quickly, the state should invest **$6 million annually**, to be administered by the Missouri Technology Corp. (MTC) in the following targeted areas:

- $1.5 million to establish a fund for proof-of-concept, prototype development or similar pre-seed funding.
- $1.5 million co-investment fund for companies created from university technologies or coming from outside the state.

- $2 million to fund organizations providing services to bioscience companies.
- $1 million opportunity fund to establish new innovative programs.

In addition, there should be an **annual capital allocation of $7 million**, $5 million for lab space for start-up bioscience companies and $2 million for specialized equipment to be used in the construction and/or fit-out of incubator or research park buildings.

1. Fund for proof-of-concept, prototype development or similar pre-seed funding:
Missouri has outstanding world-class research institutions in biosciences. Most noteworthy is Washington University's School of Medicine, which consistently ranks 3rd or 4th in the nation in NIH funding. The university is very supportive of the idea of commercializing technologies discovered in their labs, but most of those technologies are too early and would require extensive further development to become commercially viable. More and more, large pharmaceutical and device companies do not take-on technology at that stage. They want a small company to develop the technology which they would then acquire or often acquire the small company itself at some later time, typically for a substantial amount of money. Because of the high degree of risk at the beginning stage of a company with an unproven technology, private investors are reluctant to invest. This stage is commonly referred to as the "Valley of Death" because so many companies cannot survive through that period until they raise venture capital or obtain other substantial funding. In other states, proof-of-concept/pre-seed funds have been funded on an ongoing basis by state appropriations, tobacco settlement funds, and/or philanthropic grants. The only funding of this type in Missouri is from the St. Louis private not-for-profit, BioGenerator, and it is limited in the number of companies that it can fund. By not having a source of state funding, Missouri is at a severe disadvantage compared to other states in our ability to create the number of bioscience start-ups that can grow here.

2. Co-investment fund for companies created from university technologies or coming from outside the state:
Almost as difficult as the early proof-of-concept funding, is the ability of new companies to raise their first significant funding. By having some matching funds from the state, companies will more readily be able to assemble an initial funding package. This also serves to mitigate some of the risk for early investors by not being the only money in the company. Periodically, there are opportunities to attract a promising young company to locate in the state, which is interested in Missouri because of the potential research collaborations. However they usually want some state or local investment in the company as well. This fund would provide an incentive for such companies, which would be more cost effective than some of the incentives that are used in recruiting large companies.

3. Fund organizations providing services to bioscience companies:
Not-for-profit organizations, such as the Innovation Centers, BioGenerator and others, which have inadequate resources and are understaffed are limited in the services they can provide. Other states provide substantial support for similar organizations.

Strengthening these organizations which are delivering essential company support services in furtherance of the state's economic development agenda, will insure the success of any economic development plan.

4. Opportunity fund to establish new innovative programs:
Offering financial incentives for innovative thinking is a great way to inspire creativity and the best new ideas. Such new programs can do more towards executing the ultimate agenda than a continuation of the status-quo. Offering such an annual incentive will stimulate potential recipients to think in innovative and entrepreneurial terms and be accountable for the delivery of those newly conceived programs.

Capital Funding
It is difficult, if not impossible to get traditional commercial funding for incubator and research parks buildings that will house un-credit-worthy tenants, such as start-ups. Further, it is necessary to subsidize the capital costs to keep rents affordable, especially for expensive lab space. This practice has been done in other states to build the necessary infrastructure to support new start-up and growing bioscience and other technology companies.

Conclusion
Although these recommendations for support are substantially more than Missouri has funded these types of activities in the past, even in better economic times, they are still significantly less than what many other competitor states have been doing annually for the last decade or so. Missouri is running out of time to pursue a high growth bioscience strategy and the need for bold action and commitment is now.